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10/000,084	12/04/2001	Naoya Kaneda	35.C16004	8034

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EXAMINER	
HENDERSON, ADAM	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/000,084	KANEDA, NAOYA	
	Examiner	Art Unit	
	Adam L. Henderson	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *7-9,24-27 and 35-41* is/are withdrawn from consideration.

5)☒ Claim(s) *20-23* is/are allowed.

6)☒ Claim(s) *1-6,10-19 and 28-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. This application contains claims directed to the following patentably distinct species of the claimed invention:

a. Species 1 consisting of FIGS. 1 and 2.

b. Species 2 consisting of FIG. 3.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are held to be generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the

examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Dan Glueck on August 29, 2005 a provisional election was made with traverse to prosecute the invention of Species 1, claims 1-6, 10-23, and 28-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-9, 24-27. 35-41 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Optical apparatus using interchangeable image pickup devices.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651).

Parulski et al. discloses a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24), comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and

minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

7. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651).

Parulski et al. discloses an optical apparatus (electronic imaging apparatus, FIG. 1) having a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24) and contacts (terminal blocks 10 and 32 consisting of terminals 10a-10c and 32a-32c, respectively, FIG. 1) for performing transmission between the image pickup apparatus and the lens apparatus, comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines

3-8 and column2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

8. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651).

Parulski et al. discloses a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices

(column 2 lines 13-24) having different pickup modes, an auto-exposure and manual exposure are disclosed when the recited "exposure mode" is interpreted to mean auto-exposure in light of the fact that it further discusses manually controlled exposure as a separate function (column 4 lines 61-65), comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column 2 lines 19-24). A preset exposure mode described in that the disclosure states that after receiving the identifying signal an exposure control is calculated, thus this would be a preset because for any other exposure control to be activated it would have to override this initially computed exposure control that is implied to be done upon insertion of a new image sensor device (column 4 lines 53-65). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor. It would have also been obvious to implement this in the initial preset mode to inhibit the use of an aperture diameter that was too small during auto-exposure.

9. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651) and Kucher (US Patent 4,490,028).

Parulski et al. discloses a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24) having different pickup modes, an auto-exposure and manual exposure are disclosed when the recited "exposure mode" is interpreted to mean auto-exposure in light of the fact that it further discusses manually controlled exposure as a separate function (column 4 lines 61-65), comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a

light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column 2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the

sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

Both Parulski et al. and Tsuyuki et al. fail to disclose the controller inhibiting the aperture from being manually set below the calculated minimum value.

Kucher discloses that the aperture value can be adjusted in a range, the lower limit of the range being set at the minimum diameter of the aperture (column 2 lines 33-35).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the lens apparatus of Parulski et al. and Tsuyuki et al. to include the aperture setting range taught by Kucher in order to ensure the image is taken "within the optimum aperture range" (column 1 lines 60-62), in an effort to try to make the image look the best as possible. It would be obvious to make this a separate mode so that the user could turn this function off in order to allow them greater control of the camera system.

10. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651) and Washisu et al. (US Patent 5,402,202).

Parulski et al. discloses a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24) having different pickup modes, an auto-exposure and manual exposure are disclosed when the recited "exposure mode" is interpreted to mean auto-exposure in light of the fact that it further discusses manually controlled exposure as a separate function (column 4 lines 61-65), comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a

light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column 2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the

sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

Both Parulski et al. and Tsuyuki et al. fail to disclose the controller issuing a warning when the aperture is set below the determined minimum value.

Washisu et al. discloses a warning being given for conditions that would affect the image quality in a negative manner (column 13 lines 1-11).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the lens apparatus of Parulski et al. and Tsuyuki et al. to ~~in clued~~ include the warning function of Washisu et al. in order to warn the user of the potential problem, allowing them the opportunity to fix the potential problem.

11. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651) and Kucher (US Patent 4,490,028).

Parulski et al. discloses an optical apparatus (electronic imaging apparatus, FIG. 1) having different pickup modes, an auto-exposure and manual exposure are disclosed when the recited "exposure mode" is interpreted to mean auto-exposure in light of the fact that it further discusses manually controlled exposure as a separate function (column 4 lines 61-65) and having a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24) and contacts (terminal blocks 10 and 32 consisting of terminals 10a-10c and 32a-32c, respectively, FIG. 1) for performing transmission between the image pickup apparatus and the lens apparatus, comprising: an image pickup optical unit, consisting of all components within the exposure

section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the

sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

Both Parulski et al. and Tsuyuki et al. fail to disclose the controller inhibiting the aperture from being manually set below the calculated minimum value.

Kucher discloses that the aperture value can be adjusted in a range, the lower limit of the range being set at the minimum diameter of the aperture (column 2 lines 33-35).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the optical apparatus of Parulski et al. and Tsuyuki et al. to include the aperture setting range taught by Kucher in order to ensure the image is taken "within the optimum aperture range" (column 1 lines 60-62), in an effort to try to make the image look the best as possible. It would be obvious to make this a separate mode so that the user could turn this function off in order to allow them greater control of the camera system.

12. Claims 31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651) and Kucher (US Patent 4,490,028).

Parulski et al. discloses an optical apparatus (electronic imaging apparatus, FIG. 1) having different pickup modes, an auto-exposure and manual exposure are disclosed when the recited "exposure mode" is interpreted to mean auto-exposure in light of the fact that it further discusses manually controlled exposure as a separate function (column 4 lines 61-65) and having a lens apparatus (conventional optics 24, FIG. 1) interchangeably mounted on multiple image pickup apparatuses having different forms of image pickup devices (column 2 lines 13-24) and contacts (terminal blocks 10 and 32 consisting of terminals 10a-10c and 32a-32c, respectively,

FIG. 1) for performing transmission between the image pickup apparatus and the lens apparatus, comprising: an image pickup optical unit, consisting of all components within the exposure section 22: the conventional optics 24, the diaphragm 26, and the shutter 28 (FIG. 1); a light quantity adjustment unit (diaphragm 26, FIG. 1) inserted in an optical axis of said image pickup unit, the light quantity adjustment unit changing aperture diameter to control light quantity, which is inherent in the function of the diaphragm 26; and a controller (control processor 40, FIG. 1) for controlling a change in aperture diameter in accordance with an identifying signal, which provides information on the form of the image sensor (column 5 lines 3-8 and column2 lines 19-24). Parulski et al. fail to disclose that the controller sets a minimum aperture diameter and that information regarding the form of the image pickup device includes one of the information concerning pixel pitch, number of pixels, or an aperture value.

Tsuyuki et al. disclose that a minimum limit value for the diameter of an aperture should be set with accordance to the focal length of the system and the pixel pitch of the image sensor according to the equation given in the disclosure (column 26 lines 13-28).

Parulski et al. and Tsuyuki et al are both from similar fields of endeavor because both working with cameras where components are interchangeable.

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the imaging apparatus of Tsuyuki et al. to include the pixel pitch information and minimum aperture diameter of Parulski et al. in order to reduce the effects of extremely small apertures on resolving power. Tsuyuki et al. states "if the aperture diameter of the auto-iris is made extremely small, a reduction in the resolving power will be caused by the diffraction limit of light, and the depth of field cannot be improved even through the auto-iris device is stopped

down" (column 26 lines 21-25). Thus, one of ordinary skill in the art would have seen the advantage of making the identifying signal of Parulski et al. to include the pixel pitch of the sensor and the advantage of setting a minimum aperture diameter in accordance with the pixel pitch characteristic of the image sensor.

Both Parulski et al. and Tsuyuki et al. fail to disclose the controller issuing a warning when the aperture is set below the determined minimum value.

Washisu et al. discloses a warning being given for conditions that would affect the image quality in a negative manner (column 13 lines 1-11).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the optical apparatus of Parulski et al. and Tsuyuki et al. to ~~in clued~~ include the warning function of Washisu et al. in order to warn the user of the potential problem, allowing them the opportunity to fix the potential problem.

9/14/05

13. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parulski et al. (US Patent 5,040,068) in view of Tsuyuki et al. (US Patent 6,069,651) and Kucher (US Patent 4,490,028) and Arai et al (US Patent 5,857,121).

Parulski et al, Tsuyuki et al, and Kucher disclose an optical apparatus as disclosed above in reference to claims 31, 33, and 34. They fail to disclose a display and a warning indicator on this display.

Arai et al. disclose a display (electronic viewfinder) that displays warning information on the perimeter of the display (column 1 lines 42-51).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the optical apparatus of Parulski et al, Tsuyuki et al, and Kucher to include the display

and warning indicator of Arai et al. in order to give the operator knowledge of the warning that is going off and to give them a visual display of such warning (column 1 lines 29-41), allowing to take appropriate action.

Allowable Subject Matter

14. Claims 20-23 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam L. Henderson whose telephone number is 571-272-8619. The examiner can normally be reached on Monday-Friday, 8am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALH
September 12, 2005

DAVID L. OMETZ
SUPERVISORY PATENT
EXAMINER